

NOTES

The eighth meeting of the American Geophysical Union at Washington, D. C., April 26-28, 1928.—The sections of meteorology and oceanography of the union held a joint meeting on the above-named dates at which the relations between the sea and the atmosphere and the effect of these relations upon weather and climate was considered. The revised program follows.

The papers presented at the meeting doubtless will be published in full in the series of bulletins issued by the National Research Council.

REVISED PROGRAM

1. PROBLEMS RELATED TO SOLAR RADIATION

- (a) Variations of solar radiation, by C. G. Abbot.
- (b) Amount of solar radiation that reaches the surface of the earth on the land and on the sea, and methods by which it is measured by H. H. Kimball.
- (c) Amount of solar radiation that reaches lake surfaces, the proportion penetrating the surfaces, the loss of heat by evaporation and back radiation, and the relation of evaporation to meteorological conditions, by N. W. Cummings, Burt Richardson, and I. S. Bowen.
- (d) The rate at which solar radiation penetrates the surface of lakes and oceans, and the rate at which the surface loses heat as deduced from serial temperature observations, by G. F. McEwen.
- (e) On the penetration of light in the sea, by E. O. Hulburt.
- (f) The penetration of solar radiation into lakes, by Edward A. Birge and Chancey Juday.

2. PROBLEMS RELATED TO SURFACE WATER TEMPERATURE

- (a) Reliability of different methods of taking sea surface temperature, by C. F. Brooks.
- (b) 1. Significance of temperature measurements not made exactly at the sea surface, by G. F. McEwen.
- 2. Time required for temperature departures to cross from the western to the eastern side of the ocean, and the changes in their departures during the crossing, by G. F. McEwen.
- (c) Ocean surface water temperatures—methods of measuring and preliminary results, by Sir Frederic Stupart, J. Patterson, and Dr. H. Grayson Smith.

3. PROBLEMS RELATED TO ATMOSPHERIC CIRCULATION

- (a) The effect of surface winds upon ocean drift, by G. W. Littlehales.
- (b) A critical review of the work of the Indian meteorological service in monsoon predictions, by R. Hanson Weightman.
- (c) The effect of ocean currents upon the climate of continents, by A. J. Henry.

Long-range weather forecasting.—Dr. C. E. P. Brooks, in the *Meteorological Magazine*, May, 1928, treats this subject in a very sane and conservative manner. The editor welcomes the opportunity of presenting readers of this REVIEW with an abstract of the article.

According to Doctor Brooks, the methods of long-range forecasting are very diverse; but leaving the stars out of account, they may be classed under four headings: Periodicities; variations of solar activity; relations between meteorological conditions in different parts of the world, with which we may include ocean temperatures; and extensions of the method of synoptic forecasting.

Taking up these methods seriatim, Doctor Brooks remarks that there has been a great deal of research into periodicity, which has helped our insight into the working of the world's weather, but has proved of little use in forecasting. Weather cycles have not the regularity and permanence of astronomical cycles, and when applied to prediction have an annoying habit of breaking down or changing phase. Several remarkable examples of the breaking down of weather periodicities are given.

The activity of Vercelli, in Italy, and Weickmann, in Germany, in developing a so-called periodicity in the variations of atmospheric pressure is considered. This method is still being pursued in Europe.

Forecasting from the variations of solar activity is chiefly associated with the name of Mr. H. H. Clayton, who has found highly complex relations between the occurrence of maxima and minima on the curve of solar radiation obtained at the Smithsonian observatories and the subsequent development of anticyclones and depressions in South America. * * * In this country [England] no relationship has yet been demonstrated between solar phenomena and the weather.

The great majority of successful methods of long-range forecasting at present in use have arisen from the study of the relations between the meteorological conditions in different parts of the world, a branch of investigations chiefly associated with the names of Sir Gilbert Walker, Mr. E. W. Bliss and Professor Exner.

The work in India and Egypt falls into this category, and makes use of antecedent conditions as far away as South America; investigations on similar lines are being carried out in Rhodesia and altogether it seems probable that in most tropical countries the problem of long-range forecasting depends for its solution on the coordination of the succession of the seasons in all parts of the world.

Speaking of the attempt to relate ice conditions in Barents Sea with subsequent weather—the work of W. Wiese and Lieut. Commander E. H. Smith¹—the author remarks that very little progress has been made as yet in applying this method to long-range forecasts for the British Isles, because, in the main, the method is essentially “seasonal”; i. e., it is only applicable to countries where the meteorological conditions usually remain sensibly constant for several months, and again the weather of the British Isles is not bound up with the fluctuations of intensity of any one “centre of action,” but is influenced in turn by at least three such centers—Iceland, the Azores, and Siberia.

Previous studies carried out at the British meteorological office have shown that abnormal seasons in the British Isles depend much less on variations in the intensity of the Icelandic minimum or the Azores high than on displacements of their position. Hence the problem of the British Isles is to forecast such displacements. A detailed account is then given of the work of the British meteorological office toward gaining greater knowledge of these displacements.² Some of the difficulties are next pointed out. In the first place, before such forecasts can attain a high degree of success a good deal of further research will be necessary; the month is too large a unit, but the month is the unit normally adopted in the publication of climatological results, and the labor of repeating the work with a smaller unit would be very great.

Again these centers, and especially those in which pressure is below normal, often depart from the usual tracks or die out, and thus would falsify the forecasts. To discover the reason for these irregularities is likely to require a great deal of laborious research, only a small part of which has yet been carried out. Hence, although this method seems at present to offer the best prospect of real long-range forecasts being ultimately practicable in this country, the time is not just yet.

¹ This REVIEW 55: 409-410.

² Variations of pressure from month to month in the region of the British Isles. London Q. J. R. Met. Soc., 52:263.

Ocean temperatures come in for considerable space. Concerning these the author remarks: "Actually a small influence has been traced,³ but it represents only a very small fraction of the variability of our weather. The fallacy in the reasoning is that the Gulf Stream is not only an important factor of our climate but is also an extremely stable factor, and the differences from year to year in the amount of heat which it carries into the North Atlantic are very small compared with the average amount of heat which it brings in any one year."

The method of extension of the synoptic chart also receives some attention; it is pointed out that the study of the general tendencies of the pressure distribution revealed by the monthly pressure charts may at times assist the forecaster from daily synoptic charts, especially when he is considering the "further outlook" and so lead to the more frequent issue of what may be termed "medium-range" forecasts, perhaps the most useful form of all for the general public.—A. J. H.

Abandonment of telegraph circuit system in the Weather Bureau.—The plan of collecting weather reports inaugurated in 1871 was formally abandoned and a new system adopted on April 1, 1928.

In the new system each Weather Bureau station files its report in the local telegraph office for transmission over the ordinary commercial lines to either one or the other of the two general receiving and distributing points—Chicago and New York. These offices of the telegraph company maintain a special organization for the purpose of quickly duplicating the original reports as they come in from the individual stations. Thus if a report is to be sent to 140 stations in addition to the two distributing centers, that number of duplicates are made by a stencil process and the duplicates are delivered to the wires over which they must pass to their destination.

³ The effect of fluctuations of the Gulf Stream in the distribution of pressure over the eastern North Atlantic and western Europe. London Meteorological Office Geophys. Mem. 4, No. 34.

Under the old system a telegraph operator could send or receive a single message one way at a time and he utilized the entire capacity of the wire. The use of automatic apparatus that has been developed in recent years permits the automatic utilization of 3 or 4 channels each way on a single wire, thus greatly increasing the amount of traffic that can be carried on a single wire. The new system enables the bureau to collect and distribute its reports in a little less time than was consumed by the old system.

Symposium on light therapy.—The English journal, *Nature*, for April 21, 1928, contains a supplement of 18 pages devoted to various aspects of "light therapy."

Prof. F. L. Hopwood deals with the physical basis of light used for therapeutic purposes; Prof. Leonard Hill, with the biological action of ultra-violet rays; Dr. W. Kerr Russell, with the physiological action of ultra-violet radiation and its use in the home; Prof. S. Russ, with ultra-violet radiation for domestic use.

Mr. P. R. Peacock treats of medical aspects of "artificial sunlight" in private houses; Mr. C. T. Angus, of lamps for light baths; Mr. B. D. H. Watters of selection of ultra-violet lamps for home use, and, finally, Dr. L. C. Martin discusses the ultra-violet transmission of transparent materials.

April weather in the United States 50 years ago.—April, 1878, was the fourth consecutive warm month in the United States, and like the preceding month it was characterized by exceptionally low pressure in the Missouri and Upper Mississippi Valleys and the Lake region, averaging as much as two-tenths of an inch below the normal. Pressure was also low in Pacific Coast States and at St. Michaels, Alaska. It was high in Greenland and the Arctic regions of northern Europe. Two severe storms crossed the country attended by heavy snow in northern Rocky Mountain States and high winds in the Lake region. The rainfall of the month was generally ample for all needs.—A. J. H.

BIBLIOGRAPHY

C. FITZHUGH TALMAN, in Charge of Library

RECENT ADDITIONS

The following have been selected from among the titles of books recently received as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies:

American geographical society.

. . . Problems of polar research; a series of papers by thirty-one authors. New York. 1928. v, 479 p. illus. maps. diags. 26 cm. (Amer. geogr. soc. Spec. pub. no. 7.) [Contains meteorological articles.]

Bellesize, de.

Les atmosphériques et leur influence sur les signaux de t. s. f. Paris. 1925. 51 p. figs. 24½ cm.

Benford, Frank.

Daylight measurement by means of the visual photometer. p. 87-88. figs. 30½ cm. (Gen. elec. rev., v. 31, Feb., 1928.)

Bonacina, L. C. W.

Climatic control. Ed. 3. London. 1927. viii, 168 p. front. illus. plates. diags. 17½ cm.

Cullings, Edwin S., & Hazen, Allen.

Report on the control of floods in northern New York rivers. To a committee representing the mayors of the cities and villages of northern New York. Watertown. [1928.] 55 p. illus. 23 cm.

De Geer, Gerard.

Tracks of the sun. p. 858-863. illus. 28 cm. [Cutting from *Forum*, v. 78, no. 6, Dec., 1927.]

Douglass, A[ndrew] E[lliott].

Climatic cycles and tree growth. v. 2. A study of the annual rings of trees in relation to climate and solar activity. Washington. 1928. vii, 166 p. figs. plates. 25½ cm. (Carnegie inst. of Wash. Pub. no. 289, v. 2.)

Emerin, G. G.

Pilotnye issledovaniia atmosfery. (Results of the pilot-balloon observations.) Vyp. 1, 1925. Kostroma. 1928. 31 p. 31 cm.

Fassig, Oliver L.

Rainfall and temperature of Cuba. Washington. 1925. 32 p. diags. 26½ cm. (With the cooperation of the National observatory of Cuba.) (Trop. plant res. found. Bull. no. 1.)

Ficker, H. von.

Das meteorologische System von Wilhelm Blasius. p. 248-267. figs. 25½ cm. (Sitzungsb. preuss. Akad. d. Wissenschaften. 33, 1927.)

Georgii, Walter.

Flugmeteorologie. Leipzig. 1927. viii, 237 p. figs. plates. 23½ cm.